MINOR STUDIES FROM THE PSYCHOLOGICAL LABORATORY OF CORNELL UNIVERSITY.

COMMUNICATED BY E. B. TITCHENER.

VI.

TASTE DREAMS.

It was long a moot question, to what extent dreams are occasioned by peripheral stimulation, and how large is the part played in them by the centrally excited idea. There seems now to be a practically general agreement in the view that the field of hallucination must be minimized in favor of that of illusion. The influence of external stimuli upon the course of dreaming is probably universal. Thus the *Eigenlicht* of the retina has been called upon to explain the predominance of the visual dream ideas over those of the other senses.[1]

Dreams of all kinds, whether peripherally initiated or centrally initiated, imply the presence of a certain trend or disposition of consciousness. The events of the day will have left the mind suggestible in certain principal directions.[2] It would seem that the "suggestion" must be stronger in the case of dreams which are mainly or exclusively centrally excited, and the central excitation will only be possible where the train of waking thought is simply continued over, after more or less of interruption, into the dream life. The *psychischer Traum* will, therefore, naturally be the rarer type.[3] That a sensation following from an external impression shall call up associated ideas along the line of least resistance is more a matter of course; and the determining "suggestion" need not be particularly intensive. Somewhere between these

[1]Wundt, *Vorlesungen*, 2d. Ed., p. 352; *Phys. Psych.*, 4th Ed., II, p. 536. James, *Principles*, II, p. 115. Ladd, *Mind*, N. S., I, pp. 299 ff. Spitta, *Die Schlaf- und Traumzustände der menschlichen Seele*, p. 213. Calkins, this JOURNAL, V, p. 319. *Etc.*

[2]See Calkins, *l. c.*, pp. 331, 2. Wundt, *Phys. Psych.*, II, p. 540.

[3]Even so, it is probably seldom found "pure." *Cf.* Calkins, *l. c.*, pp. 333, 4. I am not referring in the present paper to dreams induced by drugs.

two forms will come the dreams which result from auto-suggestion, from the "will" to dream or not to dream in a particular manner.[1] Here the validity of the volition will be altogether dependent upon circumstances.

Most of our dreaming is in terms of vision. Auditory dreams, especially those in which the auditory ideas are verbal, probably stand high in the order of frequency. Tone-dreams seem to be of rare occurrence. I have certainly dreamed in tonal ideas: *e. g.*, the *Preislied* in the *Meistersinger*. But I have no record, and autosuggestion has failed to induce a musical dream.[2] Dreams in terms of touch appear to be usually colored by cutaneous pleasure-pain, generally pain.[3] Temperature ideas are not uncommon.[4] Dreaming in terms of the organic sensations is, perhaps, only surpassed in universality by visual dreaming. We have dreams involving the respiratory sensation complex (suffocation, flight, etc.), the static sense (looking or falling from a height, etc.), sex, sensations from stomach and intestines, from the bladder (dreams in which the idea of water plays a part), and from the heart, muscular and movement complexes (resistance, fatigue, etc.), and so on.[5] Such dreams are subject to a very curious objectification, which usually takes the form of translation into sight or hearing.[6] Of course, in most instances, the dream ideas of the less frequent senses are found together with the more common visual or auditory ideas. Tones are sung by some person seen, heat is sensed amid certain visual surroundings, etc.—Taste and smell remain.

Wundt remarks that dream hallucinations of taste and smell occur but seldom.[7] One reason for this is, probably, the difficulty of taste reproduction. "Memorial images of taste impressions are complications, in which the taste sensation proper is of but minimal intensity. It can be altogether replaced by movement sensations, for the reason that these (correlates of movements of mimetic expression) differ for different taste stimuli."[8] So, too, the memorial representation of smell is composed principally, if not exclusively, of three disparate factors: the visual image of the odoriferous object, the sensation of movement in the nose (inspiration), and the

[1] *Cf.* Nelson, this JOURNAL, I, p. 376.
[2] Wallaschek, *V. f. Mus. Wiss.*, 1892, pp. 233 ff.; Wundt, *Vorlesungen, l. c.*; Calkins, pp. 319, 322.
[3] *Cf.*, *e. g.*, the cases cited by Ladd, *Psychology*, 1894, p. 412.
[4] In my own experience. *Cf.* Calkins, p. 319.
[5] Scherner, *Das Leben des Traumes*, p. 187.
[6] Wundt, *Phys. Psych.*, II, p. 539.
[7] *In der Regel fehlen. Vorlesungen*, p. 358.
[8] *Op. cit.*, p. 310.

touch-temperature complex occasioned by the inspired air. At the same time, this weakness of the true memory image furnishes no valid reason against the cropping up of the vicarious complex idea in the dream series. Taste-smell fusions form a fairly large part of waking conscious content; and the associative suggestiveness of smell impressions is well known.

Miss Calkins[1] found two gustatory presentation dreams in a total of 335 dreams; and four olfactory and no gustatory representation dreams in a total of 298 dreams. In the abstract of Professor Murray's paper, "Do we ever dream of tasting?" in the *Proceedings of the American Psychological Association*[2] there seems to be a confusion between the classification of dreams as presentative and representative (Calkins) and as illusions and hallucinations. The "representative" dreams include both illusion and hallucination ideas. A dream is no less a dream, because the peripheral sense organ is stimulated during sleep. As we have seen, "whether the central tract . . . . can be excited by disturbances in the neighboring tracts without any peripheral stimulation" is a question which may be answered by a theoretical affirmative in the case of all the senses; but it is very doubtful whether, if we had accurate knowledge of the conditions, we should not find illusion to be the dream material in practically every instance; visual, auditory or what not. That is, it does not seem justifiable to single out the taste center as not centrally excitable, *because* it is so very easily excitable peripherally; the same holds of vision :— but there is every reason for supposing that the end organs of taste, like those of vision, are somehow concerned in the suggestion and formation of the dream idea.

During the present year I have collected five good cases of taste dreaming, no one of which is that of a presentation dream (Calkins).

1. On the evenings of January 22, 23 and 24 of the present year, I attempted to induce taste dreams by autosuggestion. Every precaution was taken to avoid the occurrence of a presentation dream; the mouth thoroughly washed out, etc. There was no indigestion. The first two nights I was unsuccessful; but on the third a perfectly good taste dream occurred. It contained visual, auditory (speech), tactile, muscular (movement of self and others), temperature, affective (both pleasurable and painful), and conative elements, beside the gustatory. The taste dreamed of was that of

[1] *L. c.*, pp. 319, 321.
[2] New York, 1894, pp. 20, 21.

English school plum cake. All the elements of reproduction were present; the visual and motor idea of breaking off fragments from a slice, the tactile sensations from their crumbling in the mouth, taste and aroma. The dream continued beyond the taste part of it. Jotted down immediately after waking, the dream record comprised 300 to 350 words.[1] The dream was of the morning class.[2] It was, however, a true sleeping dream.[3] I had arranged to be awaked somewhat earlier than usual, in order to prevent the confusion of dozing with sleep proper, and was on the morning of January 25 aroused from sound sleep. On waking, I had the normal saliva taste in the mouth, which appeared on re-testing to be perfectly free from food fragments. The associative connections between the dream and events of the waking life were traceable with rather exceptional completeness. This may have been due, in part at least, to the fact of autosuggestion.

2. The second instance appears also to belong to the class of suggested dreams. It was recorded by the Rev. A. Beede, Alfred, Me., who had seen a notice of Professor Murray's paper in the *Philosophical Review*, and "resolved to watch for an opportunity of verifying" the occurrence of taste dreaming in his own experience. The dream took place in the night of Feb. 15, 1894. The mouth was clean. There was, perhaps, a very slight indigestion. The dream contained visual, tactile, muscular (movement of self), affective (both pleasurable and painful) and conative elements, beside the gustatory. The taste dreamed of was that of fresh strawberries; two good, one over-ripe. Reproductive elements present were: picking of the fruit and placing it in the mouth, taste (pleasant and unpleasant) and aroma, two acts of swallowing and (?) one of spitting out. The dream continued after the taste part of it. The letter of communication contains 350 to 400 words. The dream was of the night class. On waking, the taste in the mouth was, perhaps, not quite normal; this, like the presence of slight indigestion, is doubtful. The associative connections between the dream and events of the waking life were traceable with very considerable completeness.

It does not seem necessary to transcribe the remaining three dreams in detail. Each dream is reported by a different observer; and I have every reason to believe the reports trustworthy. No one of the three was autosuggested.

---

[1]Nelson, p. 399.
[2]Calkins, p. 318.
[3]Nelson, p. 353.

These five are all "representative" dreams; and with the possible exception of two, as "hallucinatory" as dreams can well be. If the evidence be still regarded as unconvincing, I would propose that trial be made of autosuggestion. This can, of course, be done without any lapse into that form of the "psychologist's fallacy," against which Professor Murray cautions dream observers.[1]

Postscript. Since the above paper was sent in to the Editor, Sept. 14, I have received accounts of three more taste dreams; two from new observers. No one of them was suggested. Since that date, also, there has appeared Professor Ribot's article, *Recherches sur la Mémoire affective* (*Rev. phil.*, Oct., 1894), which confirms many of my arguments.

VII.

ON THE QUANTITATIVE DETERMINATION OF AN OPTICAL ILLUSION.

(Continued.)

BY R. WATANABE, PH. D.

On page 418 of the current volume of this JOURNAL, Mr. Knox writes, apropos of the dotted-line and point-distance illusion, as follows: "Binocular bisection of horizontal distances is not subject to any constant error; binocular bisection of verticals is subject to the constant error of overestimation of the upper part of the field of vision. We should, therefore, expect to find the *m. v.* of our vertical △'s greater than that of our horizontal. The results [do not verify this expectation] . . . . This is curious. We are unable to offer any explanation of the result."

Further experiments upon the illusion in question were made, in the hope of elucidating this difficulty. Every precaution that could be thought of was taken to ensure accuracy and avoid the intrusion of complicating factors. Mr. Knox' experiments were exactly repeated, with a single modification. Whereas, on his cards, the point-distance was constant, and the dotted-line variable, on our own the reverse was the case. We imagined that if this alteration in the nature of stimulus brought about any alteration in judgment, the latter would be of such a kind as to be readily determinable for itself; and that this determination, itself an interesting side issue, would not interfere with the realization of the main object of the new experiments. On the other hand, the stimulus altera-

[1] P. 21.